Statement of Kevin Dietly to the TDEC Waste Reduction Task Force Related to Beverage Container Deposits

My name is Kevin Dietly and I am a Principal at Northbridge Environmental Management Consultants in Westford, Massachusetts. I am here today to speak to the Task Force about beverage container deposit programs, commonly called bottle bills, and some of the practical, economic, and environmental issues surrounding them. I have worked on the implementation and analysis of deposit laws in the US and abroad for more than 20 years. As an economist, I have focused primarily on the economic aspects of deposits and other recycling systems. I am here at the request of a coalition of Tennessee retailers and beverage companies.

I would like to use my time to discuss three broad issues and then would be happy to take questions and discuss these issues further.

- **We have many opportunities to enhance diversion and materials recovery.** As raw materials and energy become scarcer and prices rise for these resources, we must be more efficient about extracting value from what we now call waste. Efficient materials recovery can set us on the path of more sustainable economic growth. The beverage industry is working to help lead these efforts around the US.

- **A beverage container deposit program is not an efficient or sustainable way to achieve this goal.** These laws:

    - **Undermine existing recycling programs:** Deposit laws take revenue away from existing recycling programs and could jeopardize their existence.
    - **Create incentives for fraud:** Illegal redemption is common in deposit states and would undermine proposed legislation in Tennessee.
    - **Increase emissions:** Additional consumer and commercial vehicle traffic to redeem and collect containers means significant new energy use and greenhouse gas emissions.
    - **Raise costs:** Deposits are the most expensive way to recycle or clean up litter.

- **The specific bills proposed would not work as intended.** Senate Bill 1408 and House Bill 1829 contain problematic provisions that will adversely affect:

    - **Consumers:** pay costly new taxes and are faced with expensive and inconvenient options to redeem deposits that they must pay.
    - **Businesses:** the proposed legislation would drive retail business out of the state.
    - **State government:** bears the risk of fraudulent redemption, because it will be paying out refunds and fees on empty containers brought in from other states.
    - **Local governments:** lose commodity revenue when bottles and cans that are currently recycled are shifted into the redemption system. Those losses could jeopardize recycling programs throughout the state.

1. Solid Waste Issues

Recycling

Nationally we recycle about one-third of the waste we produce at home and at work, but we are still throwing away many valuable materials. The benefits of recycling materials like metals, plastics, glass, and paper products are significant and include avoided disposal costs and impacts, reduced energy use, lower greenhouse gas emissions, and avoided air and water emissions from primary production.

Over the last 20 years, we saw a resurgence in interest in recycling as disposal options became more limited and more expensive. Many communities and businesses adopted recycling programs in the late 1980s and into the 1990s as a way of diverting waste from disposal and earning revenue from the value of the diverted material. The number of recycling programs and recycling rates increased accordingly. By the late 1990s, however, interest in recycling waned. Consumers became more casual about recycling and political leaders shifted resources devoted to recycling to other priorities.

We have not invested enough in recycling in this country, especially given the potential for recycling to address energy and environmental issues we face, such as high prices and concerns over climate change. We know how to recycle more material and how to do it efficiently, but we simply are not doing it in enough places.

Initiatives

The beverage and grocery industries are involved in recycling research and program development to help improve waste diversion rates around the country. Given the focus of this discussion on deposit programs, I have limited my comments on these initiatives, but would be happy to expand on them separately.

The companies' most direct control over waste issues surrounds the packaging decisions it makes. Companies economic and environmental interests converge in reducing the amount of packaging used and using packaging materials that are highly recyclable, since this makes it more likely that the material will be recovered. Light-weighting containers provides direct environmental benefits in reduced primary material production. Lightweighting of water bottles alone is expected to reduce use of PET by more than 100 million pounds this year. Nearly 90 percent of the industry's packaging is PET or aluminum – two of the most valuable and desirable components of the recycling stream. The high value of this material makes it an asset to local recycling programs, not a liability.

The beverage, grocery, and retail industries established the National Recycling Partnership in 2006 with the National Recycling Coalition and EPA. This Partnership funded ground-breaking research into factors that motivate consumers to recycle and participants are developing strategies for a national recycling promotion campaign based on these findings. Using the industry's marketing power and talents to promote recycling is a natural role for the industry.

A second component of the Partnership's work is demonstrating best practices through support of model cities programs. Last Monday, March 17, the Partnership announced its first model city project in Hartford, Connecticut. The grant from the Partnership will enable the City to

convert part of its curbside program to single-stream collection. At the same time, recyclers and the state are committing to widespread investment in single-stream elsewhere in the state to enhance participation and make recycling simpler, more efficient, and more effective.

The beverage industry also continues its on-the-ground involvement with recycling programs that dates back 30 years. The beverage industry has provided funding to communities for recycling equipment, sponsors recycling events and litter cleanups, and has supported promotional campaigns. We are developing an initiative to support pay as you throw programs and will be launching a website with resources on the issue soon.

Meanwhile, individual companies are investing in environmental projects related to recycling (*e.g.*, the Coca-Cola bottle-to-bottle PET recycling plant in Spartanburg, SC), water efficiency, and energy reduction (*e.g.*, Pepsi is the largest corporate purchaser of green power based on use of renewable energy).

Litter

A very small part of the waste we produce ends up outside the waste management system as litter. About 2/3 of all litter is accidental according to current research. Accidental litter occurs when materials blow out of an unsecured load on a truck or out of an overfilled trash container. The remaining 1/3 of litter is the result of an intentional act where someone knowingly throws something out a car window or onto the ground.

We control litter by reaching out to litterers to tell them their actions are unacceptable and, inevitably, we must clean up the litter that still appears on our roads and parks and beaches. As with recycling, we know a lot about what works to control litter. And we know that these issues extend far beyond beverage containers. Next I would like to provide some context for beverage containers in litter and the waste stream.

2. Beverage Containers in Litter and the Waste Stream

Beverage containers of all kinds represent about 7.4 percent of littered items according to 17 litter surveys conducted around the US and Canada between 1989 and 2006 (see table).[1] Some of the more significant components of litter are take-out food packaging (about 20 percent) and candy and snack wrappers (about 13 percent).

Type of Beverage	Share of Litter*	
	17 States	***Tennessee***
Carbonated beverage containers (CSDs and beer)	6.1%	4.1%
Noncarbonated beverage containers (alcoholic and nonalcoholic)	1.3%	1.3%
All Beverage Containers in Litter	**7.4%**	**5.4%**

** Averages from 17 studies in the US and Canada between 1989 and 2006*

The figures for Tennessee in 2006 were 4.1 percent of litter from

[1] "Sweating the Litter Things," *Resource Recycling*, May 2005, p.25 and studies completed in Georgia and Tennessee in 2006.

carbonated beverage containers and 1.3 percent from noncarbonated beverage containers.[2] If a beverage container deposit program eliminated every beverage container from Tennessee roadsides and parks, 95 percent of litter would still remain.

Despite the cost and effort devoted to redeeming deposit containers, all the same litter control programs that exist today in the state would still exist and would still have to be funded. Deposits simply add another more costly layer to litter control efforts, but do nothing to address most of the problem.

Deposit programs are not a prerequisite for a clean state. In fact, many nondeposit states have less litter than deposit states because they have programs that focus on the whole problem, not just a few percent of it.

If we shift our attention from litter to the entire waste stream, we find that beverage containers of the types identified in proposed deposit legislation in Tennessee represent about four percent of the waste we produce.[3] The most valuable materials in the waste stream are beverage containers – aluminum cans and PET and HDPE plastic bottles. These materials command the highest prices of any commodity in household waste. Therefore, these materials are already widely recycled. A deposit law would transfer those materials from the existing recycling system to a new beverage container redemption system.

Given the share of the waste stream represented by these containers and the fact that many of them are already recycled (given their value and the long history of recovering beverage containers), a beverage container deposit law would have only a very limited impact on the overall diversion rate in Tennessee. I would project an increase of only one to, at most, two percentage points in the overall diversion rate.

3. Deposit Systems Are Not Efficient or Sustainable

Enacting a beverage container deposit law means that new infrastructure for redeeming, transporting, and processing beverage bottles and cans must be established. That system is separate from and, in many cases, duplicates existing recycling infrastructure. This separate recovery system has adverse impacts on existing recycling systems, creates incentives for fraudulent behavior, produces additional vehicle emissions associated with redemption, and has high operating costs. I will address each of these briefly below.

a. Undermining Successful Recycling Programs

A deposit program in Tennessee or any other state would compete with the existing recycling programs set up at the state, county, and local levels. Millions of taxpayer dollars have been invested in these systems, which are designed to capture a wide range of materials from paper products to cans, bottles, and organic wastes. These programs focus on collecting commodities, not just certain types of packaging or materials. Handling materials in bulk, without the sorting,

[2] "Tennessee 2006 Visible Litter Survey," RW Beck for the Tennessee Grocers & Convenience Store Association, February 2007.
[3] Based on industry figures and aggregate data from "Municipal Solid Waste Generation, Recycling, and Disposal in the United States, Facts and Figures for 2006," US EPA, http://www.epa.gov/epaoswer/non-hw/muncpl/msw99.htm.

separating, and counting that is required in a deposit system, makes for a much less expensive and far more efficient recycling infrastructure.

Unfortunately, deposit systems target some of the most valuable commodities in the waste stream – aluminum cans and plastic bottles. These materials may provide as much as 70 percent of the revenue earned in a community recycling program. If these beverage container materials were diverted to a competing recovery system like a deposit/refund system, communities would lose that revenue and would need to cut back on recycling, or cut other programs to keep the recycling program operating.

Two major recycling companies recently announced their opposition to legislation to expand existing deposit programs in Connecticut and New York because of this issue. FCR Recycling (headquartered in Charlotte) determined that a planned expansion of Connecticut's bottle bill to include noncarbonated beverages would cost it $900,000 per year in lost revenue in the state – some of which it shares with local communities and some of which offsets the cost of major investments made in Connecticut recycling infrastructure. FCR and the Connecticut Resource Recovery Authority (the state agency that oversees solid waste infrastructure) both oppose the expansion proposal.

Similarly, New York City's recycling contractor announced last year that it could not meet the financial obligations of its long term recycling contract with the City if additional aluminum cans and PET bottles were included in the deposit system and removed from the curbside program. The firm estimated an annual revenue loss of $3.1 million per year from the expanded bottle bill.

The City of Columbia, Missouri made history in 1982 when it adopted the country's first municipal container deposit ordinance. Twenty years later it made history again, when residents overturned the ordinance in a referendum that was backed by the City's recycling program. Including the beverage containers in the municipal recycling program enabled Columbia to expand and upgrade its recycling program, operate more efficiently, and grow its recycling tonnage significantly since repeal.

b. Incentives for Fraud

Establishing a refund value, in this case 5¢, creates an incentive for individuals and businesses to profit from defrauding the state. It is a simple matter to bring a container from outside a deposit state and redeem it in the deposit state – this practice occurs every day on both a small and large scale. Organized fraudulent redemption occurs throughout the deposit states and is most severe where the deposit is highest (Michigan at 10¢) and where the state is surrounded by nondeposit states.
The way the proposed bill is written in Tennessee, the incentive for fraud extends beyond the 5¢ available to consumers or others that bring in foreign containers; the 3¢ fee earned by redemption centers creates an incentive for those centers to process as many containers as possible, whether or not they are eligible for refunds in Tennessee. That 8¢ incentive will generate significant traffic of empty containers across state lines into Tennessee. Payment of refunds and fees on those fraudulent returns will come out of the state fund and ultimately out of Tennessee consumers' pockets.

With 50 percent of Tennessee's population living in border counties, the opportunities to purchase beverages outside the state and return them in Tennessee also adds to the potential

fraud problem. These out of state purchases would not generate revenue for the state fund, but the returns would draw down the fund balances, leaving less for the many other purposes enumerated in the bill.

Massachusetts has probably done the most research on fraud and state estimates peg the amount of fraud at up to 11 percent of all containers redeemed for refund. In certain parts of the state, fraudulent returns may account for as much as 30 percent of returns. Yet Massachusetts is largely surrounded by states with similar deposit laws. The potential impact of fraud for an "island" deposit state like Tennessee is much greater. Beverage companies in border areas of Iowa (as well as along nondeposit state borders in other deposit states) routinely experience redemption rates of over 100 percent: they pay out more refunds than they collect as deposits. The proposal in Tennessee would shift that financial risk onto the state.

In the end, the many avenues for fraud will drain the state fund, leaving significantly less money (if any) for the many promised recipients of the "windfall" from the deposit program. A deposit program is not a very good way to raise money, especially if it is enacted in a state surrounded by nondeposit states.

The proposed solution to fraud in the bill, embedding the refund value in the bar code of the container, would be as ineffective as it is impractical. This would theoretically require every beverage manufacturer in the US and abroad to produce labels and containers for sale only in Tennessee; a highly unlikely proposition. Further, this "solution" only works if the returned containers are redeemed through a reverse vending machine, which automatically "reads" bar codes on containers to verify that they are eligible for redemption. Containers redeemed manually at redemption centers would not be scanned by bar code readers and redemption center operators would have every incentive to accept out of state containers to maximize their facility revenue.

c. Increased Vehicle Emissions

Deposit/refund programs shift most beverage container recycling over to a separate system. Instead of recycling by leaving containers with other recyclables at the curb or taking them to a dropoff center with other recyclables, consumers must travel to designated redemption centers. The proposed Tennessee bill relies heavily on these independent centers. Where redemption centers are located at food stores, this may not require additional travel, but in many cases, redemption requires a special trip. That trip is not only costly in terms of time spent, but it means more miles driven, more gas used, and more emissions and greenhouse gases.

Furthermore, additional trucks must be put into service to make the rounds of these redemption centers and collect empty containers, all while local recycling programs continue their truck routes to handle the remaining recyclables.

The environmental consequences of this additional travel can be significant. A June 2007 study on the costs of the Vermont redemption system calculated the incremental impact of that state's deposit program on fuel consumption and GHG emissions (CO_2).[4] Using research from Massachusetts consumers, the study estimated that Vermonters drove 7.6 million miles per year

[4] *The Costs of Beverage Container Redemption in Vermont*, for the Agency for Natural Resources by DSM Environmental, June 30, 2007.

to redeem containers. This does not include the impact of additional truck traffic to travel to these redemption centers, collect the empty containers, and transport them to processing facilities. Where recycling takes place today in municipal and commercial programs, the vehicles are already making the trip to haul other commodities; in the case of a new redemption system, the trips would all be incremental to what is occurring today.

d. High Costs

Deposit/refund systems are the most expensive way to recycle beverage containers or to control beverage container litter. Northbridge research and studies by others consistently show that actual deposit system costs far outweigh the cost of recovering containers through curbside or other conventional recycling programs. For "traditional" deposit programs that include only beer and soft drink containers, the cost of recycling is three to four times higher per ton of material than for curbside programs. Where traditional deposit programs have expanded to include noncarbonated beverages as well, their costs soar even higher.

Programs like California's redemption system that are based on centralized funding and an independent redemption network have lower operating expenses, but this is largely offset with other costs of supporting the program including administrative oversight and subsidies for various program stakeholders.

From a litter control perspective, deposits are much costlier than other forms of litter control – even paid collection programs. Research summarized in a recent journal article suggests that deposits cost three to four times as much as a paid pickup program and nearly 20 times as much as a comprehensive system that combines cleanup, prevention, and outreach efforts.[5]

4. Provisions of SB 1408/HB 1829

The proposed law draws from deposit programs in place in eleven other US states – all but one of which were adopted more than 20 years ago. This proposal is most like the newest law in Hawaii, but contains some unique provisions.

Most beverages in glass, plastic, or metal containers two liters or less would carry a 5¢ deposit value as well as a 3¢ container tax. Beverages include beer, soft drinks, water, juices, teas, sports drinks, and coffee drinks; milk, wine, and spirits are excluded. Consumers could get the 5¢ deposit refunded if they returned the empty container; the 3¢ tax is not refundable.

Beverage distributors would pay the deposit and tax to the state on every container sold. Distributors would pass these charges on to retailers who would, in turn, pass them on to consumers. From the state fund, the state would pay out (1) 5¢ refunds for containers returned to newly established "redemption centers," (2) 3¢ fees to the redemption centers for each container returned, and (3) administrative expenses. The balance of the funds (if any) is directed to a range of programs from property tax relief to beverage distributors to litter grants. Proposed amendments to the bill create even more avenues for the funding including unspecified additional subsidies to redemption centers and funds to counties for solid waste management.

[5] *Op.cit.*, Note 1, p. 29.

The state is responsible for approving redemption centers around the state and establishing and funding alternative sites in consultation with the counties if no redemption center exists in an area. The state must also oversee the collection and disbursement of funds and provide enforcement.

5. Specific Issues with SB 1408/HB 1829

This bill is anti-consumer, anti-business, and exposes the state and local communities to significant financial risk. This bill cannot succeed in achieving both its environmental goals and its fundraising goals. For the bill to work environmentally the redemption rate for containers must be high; that means that consumers are shifting these containers into the redemption system from the current recycling system or from disposal. If the rate is high, however, there will not be much money left in the state fund to fulfill the many fiscal obligations listed in the bill and community recycling programs would be losing significant revenue from aluminum and plastics. For the bill to succeed as a money-raiser, the redemption rate needs to be low and fraud must somehow be controlled. In this case, the program would be providing little or no waste diversion benefit.

a. Consumer Impacts

The most obvious impact to consumers is the price increase resulting from the imposition of an 8¢ charge on every beverage container sold ($1.92 per case). In the case of smaller packages including soda cans and water bottles, this price increase represents a substantial share of the price of the product. For lower income consumers, the deposit is a very regressive price increase that will impact these consumers the most.

Proponents of deposits argue that 5¢ of the charge is merely a deposit and can be redeemed readily, but this ignores two key issues. First, the 3¢ tax is not refundable to consumers and will be dedicated to covering the high cost of operating the redemption system and attempting to generate funding for other programs including property tax relief. I estimate that this tax would cost Tennessee consumers $135 million per year. Second, the bill does *not* necessarily make it easy for consumers to get back their deposits. The bill offers no assurances to consumers that they will have redemption opportunities near their homes. The proposal assumes that redemption centers will spring up across the state, but there are no guarantees that they will, especially in rural areas. To the extent that consumers can't find a convenient center, they must either drive long distances or forfeit their nickels. Ironically, the harder it is for consumers to get their money back, the better it is for the state, because the state won't have to pay out refunds.

b. Business Impacts

The $1.92 per case price increase on most beverages will certainly drive consumers across state lines to shop. In states with deposits on beer and soda only, food stores in border counties have lost 4.6 percent of their total sales through a combination of higher prices and lost business to neighboring states.[6] The impact in Tennessee would be much more severe because many more

[6] University of Kentucky Center for Business and Economic Research, "The Economic Impact of a Container Deposit Program in Kentucky," March 1999.

products are subject to deposits and the price impact would be 8¢, not the 5¢ that is common in the existing deposit states.

Consumers do not limit their cross-border purchases to beverages; this bill would adversely affect many parts of the retail industry, its suppliers, and its employees. That means lost jobs and lost tax revenue for the state.

c. Government Impacts

TDEC would need to develop a system for tracking and managing monthly deposit and tax payments from hundreds of beverage companies and "importers" in North Carolina. The state also must manage the entire redemption system process, from approving sites to identifying "underserved" areas and establishing additional sites with money from the fund. The state also will receive regular requests for reimbursement from redemption centers, which must be audited and reviewed to protect against fraud.

The key risk for the state is if SB 1408/HB 1829 ends up costing the state more than it takes in because of fraud and because of unanticipated expenses to manage the program and subsidize redemption.

While the state deals with the risk of fraud, local governments must deal with lost revenue as the cash crops of the recycling system (aluminum, PET, and HDPE) are harvested by the redemption system. This bill could endanger the viability of existing recycling programs all across the state, all the while providing very little incremental improvement in the diversion rate.

Conclusions

Deposit systems in general and the specific details of SB 1408/HB 1829 do not provide an answer to Tennessee's quest for higher diversion rates. Focusing time and resources on more efficient and effective approaches that reach more of the waste stream (and capitalize on the current infrastructure already in place) will do far more to reduce waste disposal.

Incurring the high economic and environmental costs of a bottle bill would be counterproductive, especially given the bureaucratic and costly system that would have to be created to handle a few percent of the state's waste. These particular bills compound these fundamental problems with an untested redemption scheme that will tax consumers, damage local businesses, and expose state and local governments to significant financial risk.